

What is claim d is:

1. A method for preparing a microcapsule comprising the steps of:

1) dissolving a mixture of low-molecular and a high-molecular weight polyols in a polymer solution containing wall-component polymer to make polyol solution;

2) adding the polyol solution into an aqueous solution containing stabilization agent and emulsifying to obtain emulsion;

3) removing solvent from the emulsion while stirring under reduced-pressure condition in a vacuum evaporator to make dispersed solution;

4) filtering the dispersed solution to remove aqueous materials to collect microcapsules; and

5) drying the collected microcapsules in a vacuum evaporator at room temperature to obtain polyol/polymer microcapsules.

2. The method according to claim 1, wherein the amount of the sum of the low molecular weight polyol and high molecular weight polyol is the same with that of the wall-component.

3. The method according to claim 1, wherein the stabilizer is at least one selected from the group consisting of arabic, tragacanth, karaya, larch, ghatti, locust bean, guar, agar, alginate, carrageenan, furcellaran, pectin, gelatin, starch and derivatives thereof; dextran, xanthan gum and derivatives thereof; and copolymer containing polyvinyl, polyacryl, polyol and the derivatives thereof.

4. The method according to claim 1, wherein the low molecular weight polyol is at least one selected from the group consisting of polyethylene glycol, polypropylene glycol, butylene glycol, propylene glycol, copolymers and derivatives thereof.

5. The method according to claim 1, wherein the amount of the low molecular weight polyol is about 0.1~70wt% of the total weight of the microcapsule.

6. The method according to claim 1, wherein the molecular weight of the low molecular weight polyol is less than 1000g/mol and acts as template.

7. The method according to claim 1, wherein the high molecular weight polyol is at least one selected from the group consisting of polyethylene glycol, polypropylene glycol, copolymers and derivatives thereof.

8. The method according to claim 1, wherein the wall-component polymer is at least one selected from the group consisting of polyester, polyacrylate, polyvinyleter, unsaturated carboxylic acid, copolymers and derivatives thereof.

9. The method according to claim 1, wherein the amount of the wall-component polymer is 1~99.99wt% to the total weight of the microcapsule.

10. A method for preparing a polyol/polymer microcapsule containing at least one active component comprising the steps of:

1) dissolving at least one active components selected from oil- and water-soluble active components in a polyol/solvent solution;

2) dispersing the solution of step 1) in a polymer solution containing wall-component polymer;

5 3) then emulsifying the dispersed solution to collect an emulsion; and

4) removing polyol and solvent from the emulsion to collect hard polymer microcapsules.

11. A method of preparing a microcapsules containing an enzyme comprising
10 the steps of:

1) dispersing an enzyme into a low molecular weight polyol;

2) re-dispersing the dispersed enzyme/polyol solution of step 1) into a polymer solution containing high molecular weight polyol;

3) emulsifying the solution of step 2) to collect emulsion; and

15 4) solidifying the enzyme/polyol/polymer emulsion of step 2) to collect hard polymer microcapsules;

wherein a wall-component polymer is dissolved in the polymer solution of step 2).

20 12. The method according to claim 11, wherein the enzyme is at least one selected from the group consisting of oxidoreductase, transferase, hydrolase, lyase, isomerase, synthase and ligase.

13. A microcapsule composed of triple layers comprising:

25 an internal nuclei with active component;

hydrophobic high molecular weight polyol surrounding the nuclei; and
outer polymer wall.

14. The microcapsule according to claim 13, which is prepared by a method of
5 claim 1.

15. The microcapsule according to claim 13, which is prepared by a method of
claim 10.

10 16. The microcapsule according to claim 13, which is prepared by a method of
claim 11.

17. A cosmetic composition containing a microcapsule composed of triple layers
comprising:

15 an internal nuclei with active component;
hydrophobic high molecular weight polyol surrounding the nuclei; and
outer polymer wall.

18. The cosmetic composition according to claim 17, wherein the active
20 component is at least one selected from the group consisting of retinol, retinyl
acetate, retinyl palmitate, tocopherol, tocopheryl acetate, tocopheryl linoleate,
tocopheryl nicotinate, linoleic acid, coenzyme Q-10, resveratrol, lipoic acid,
licorice, ascorbic acid, and chlorogenic acid.